UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,353	10/21/2003	Jonathan A. Tertel	107306	4257

23490 7590 03/30/2006

JOHN G TOLOMEI, PATENT DEPARTMENT
UOP LLC
25 EAST ALGONQUIN ROAD
P O BOX 5017
DES PLAINES, IL 60017-5017

EXAMINER	
GRIFFIN, WALTER DEAN	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/690,353	TERTEL, JONATHAN A.	
	Examiner	Art Unit	
	Walter D. Griffin	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *102103*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 17 is objected to because of the following informalities: In line 13 of claim 17, the second occurrence of the word "a" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Verachtert (US 4,481,106).

The Verachtert reference discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases

are separately withdrawn from the vessel. See column 2, line 39 through column 3, line 37; column 4, lines 32-68; column 5, lines 1-8; and column 6, lines 4-44.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927).

The Morris reference discloses an apparatus that comprises a vessel having an outer wall, a first end, and a second end. The vessel contains one inlet for a liquid such as a mixture of hydrocarbons, aqueous alkaline solution, and oxygen. It also contains a hydrocarbon outlet positioned between the first and second ends with a baffle between the inlet and hydrocarbon outlet. This outlet would necessarily include a collector as claimed. This hydrocarbon outlet is deemed to be in communication with an outlet conduit since the hydrocarbon must be

transported to other equipment. The apparatus also contains an outlet for an aqueous stream that is positioned closer to the second end than the hydrocarbon outlet. The apparatus also contains a reaction section and a permeable screen (i.e., shield) that supports the catalyst in this reaction section. See column 2, lines 5-40 and 54-68; column 3, lines 1-23; and column 5, lines 23-44.

The Morris reference does not disclose that the outlet conduit is in communication with a residual alkaline removal unit such as a water wash unit.

The Dresser reference discloses that a hydrocarbon stream from an alkaline treating zone is passed through a conduit to a water wash vessel. See the figure and column 4, lines 9-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Morris by including an outlet conduit in communication with a residual alkaline removal unit such as a water wash column as suggested by Dresser because a stable hydrocarbon product will be recovered.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 2 above, and further in view of Verachtert (US 4,481,106).

The previously discussed references do not disclose an apparatus wherein all of the fluid passes through the permeable shield.

The Verachtert reference discloses a hydrocarbon treating apparatus in which all of the fluid passes through a permeable screen defining a reaction zone and into a separation zone. The reaction zone and separation are contained within the same vessel. See column 2, line 54 through column 3, line 13.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references and modify the apparatus so that all of the fluid passes through the screen as suggested by Verachtert because a fluid that passes through the screen can be effectively separated into an aqueous phase and a hydrocarbon phase.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 1 above, and further in view of "Hydrocarbon Processing".

The previously discussed references do not disclose a drain pot in communication with aqueous outlet.

The "Hydrocarbon Processing" reference discloses the use of settling tanks (i.e., drain pots) in a sweetening process. Recovered alkaline solution is then recycled. See the figure.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the previously discussed references by including a settling tank and recycle line as suggested by the "Hydrocarbon Processing" reference because additional alkaline solution would be expected to be separated in the tank. Its reuse reduces costs associated with supplying new alkaline solution.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 4,019,869) in view of Dresser (US 3,216,927) as applied to claim 1 above, and further in view of Kraemer et al. (US 5,674,378).

The previously discussed references do not disclose a sand filter.

The Kraemer reference discloses that a hydrocarbon recovered from a caustic treating process can be passed through a sand filter. See column 6, lines 25-47.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by including a sand filter in the apparatus as suggested by Kraemer because the hydrocarbon recovered from the apparatus will have a higher purity.

Claims 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verachtert (US 4,481,106) in view of Dresser (US 3,216,927).

The Verachtert reference discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases are separately withdrawn from the vessel. See column 2, line 39 through column 3, line 37; column 4, lines 32-68; column 5, lines 1-8; and column 6, lines 4-44.

The Verachtert reference does not disclose the passing of the hydrocarbon product to a residual alkaline removal unit the claimed manner.

The Dresser reference discloses that a hydrocarbon stream from an alkaline treating zone is passed through a conduit to a water wash vessel. The water is added to the conduit upstream of the water wash vessel. See the figure and column 4, lines 9-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Verachtert by including a hydrocarbon conduit for delivering at least a portion of the hydrocarbons from the vessel to a water wash vessel and a water conduit for delivering water to the hydrocarbon conduit upstream of the water wash vessel as suggested by Dresser because a stable hydrocarbon product will be recovered. By including the water-washing step of Dresser in the process of Verachtert, the hydrocarbon would be washed without first undergoing settling.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verachtert (US 4,481,106) in view of Verachtert (US 4,199,440).

The Verachtert '106 reference discloses a process for converting mercaptans contained in a hydrocarbon feed stream such as naphtha. These feeds may have an initial boiling point within the claimed range. The process comprises mixing the feed with an alkaline stream and oxygen and passing the mixture to the reaction section of a vessel. The alkaline stream may be continuously mixed with the hydrocarbon. The feed can also be mixed with a dissolved catalyst, which is equivalent to the claimed catalyst promoter. In the reaction section, the mixture contacts a supported oxidation catalyst. All of the mixture is then passed through a permeable screen (i.e., shield) and into a separation section of the vessel. A hydrocarbon-aqueous interface is generated in the separation section and the hydrocarbon and aqueous phases are separately withdrawn from

the vessel. See column 2, line 39 through column 3, line 37; column 4, lines 11-13 and 32-68; column 5, lines 1-8; and column 6, lines 4-44.

The Verachtert '106 reference does not the treatment to remove naphthenic acids from the hydrocarbon prior to the treatment to remove mercaptans.

The Verachtert '440 reference discloses a pretreatment of a feed to a mercaptan oxidation process. The pretreatment comprises contacting the hydrocarbon with an alkaline solution and then removing the acid salts from the hydrocarbon. See column 3, lines 43-60.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Verachtert '106 by including the pretreatment steps of Verachtert '440 because naphthenic acids tend to interfere with the separation of oil and water phases. Therefore, the removal of the acids would improve the separation efficiency of the process of Verachtert '106.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/690311. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to an apparatus for converting mercaptans and a process for converting the mercaptans. The apparatus in each set of claims includes a vessel, inlets, and outlets, and water wash vessels. Each set of claims also includes the process of using the apparatus. The claims in 10/690311 include additional limitations not present in the claims of 10/690353. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the claims in 10/690311 by eliminating the additional features and steps if the function of these features and steps is not desired.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses caustic treating processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on M-F 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
March 28, 2006